



## United States Department of the Interior

FISH AND WILDLIFE SERVICE  
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July 30, 2013

To: Interested Parties

From: Josh Gruber, Fish Biologist, Red Bluff Fish and Wildlife Office

Subject: Biweekly report (July 16, 2013 - July 29, 2013)

Please find attached preliminary daily estimates of passage, 90% confidence intervals, and fork length ranges of juvenile salmonids sampled at Red Bluff Diversion Dam for the period July 16, 2013 through July 29, 2013. Race designation was assigned using length-at-date criteria.

This report also contains graphical displays of salmonid passage dating back to 2006 for comparison.

Please note that data contained in these reports is subject to revision as this data is preliminary and undergoing QA/QC procedures.

If you have any questions, please feel free to contact me at (530) 527-3043 ext 233

Table 1.— Preliminary estimates of passage by brood-year (BY) and run for unmarked juvenile Chinook salmon and steelhead trout captured by rotary-screw traps at Red Bluff Diversion Dam (RK391), Sacramento River, CA, for the dates listed below. Results include estimated passage, peak river discharge volume, water temperature, turbidity, and fork length (mm) range in parentheses. A dash (-) indicates that sampling was not conducted on that date.

Date	Discharge volume (cfs) <sup>1</sup>	Water temperature (°C)	Water turbidity (NTU)	Estimated passage				
				BY13 Winter	BY12 Spring	BY12 Fall	BY13 Late-Fall	BY13 RBT
7/16/2013	14,400	15.6	1.8	0 (–)	0 (–)	2,318 (68 – 120)	161 (63 – 66)	1,401 (26 – 101)
7/17/2013	14,500	15.3	1.8	0 (–)	82 (195)	6,220 (70 – 107)	419 (64 – 67)	2,912 (42 – 102)
7/18/2013	14,500	15.4	1.7	0 (–)	0 (–)	14,987 (70 – 110)	1,009 (61 – 67)	2,595 (41 – 100)
7/19/2013	14,500	15.7	1.8	0 (–)	0 (–)	12,237 (69 – 115)	391 (60 – 68)	1,278 (27 – 134)
7/20/2013	14,600	15.9	–	–	–	–	–	–
7/21/2013	14,700	15.8	–	–	–	–	–	–
7/22/2013	14,700	15.8	1.7	0 (–)	0 (–)	5,121 (70 – 121)	476 (58 – 69)	541 (36 – 91)
7/23/2013	14,500	15.8	1.4	0 (–)	0 (–)	4,436 (72 – 112)	216 (65 – 70)	324 (52 – 74)
7/24/2013	14,500	15.6	2.2	116 (33 – 34)	0 (–)	2,714 (72 – 118)	289 (59 – 70)	925 (45 – 94)
7/25/2013	14,500	15.7	1.7	1,101 (30 – 36)	0 (–)	6,605 (72 – 120)	644 (68 – 71)	2,204 (34 – 105)
7/26/2013	14,500	15.7	1.7	0 (–)	0 (–)	3,575 (73 – 116)	223 (60 – 69)	1,896 (31 – 109)
7/27/2013	14,500	15.7	1.6	0 (–)	0 (–)	3,050 (73 – 121)	226 (61 – 72)	1,525 (25 – 102)
7/28/2013	14,600	15.7	–	–	–	–	–	–
7/29/2013	14,600	15.7	1.6	697 (32 – 37)	0 (–)	2,730 (73 – 125)	269 (61 – 72)	1,997 (27 – 97)
<b>Biweekly Total <sup>2</sup></b>				<b>2,233</b>	<b>115</b>	<b>84,198</b>	<b>5,617</b>	<b>22,567</b>
<i>Biweekly Lower 90% Confidence Interval</i>				171	-146	26,400	1,046	8,657
<i>Biweekly Upper 90% Confidence Interval</i>				4,295	376	141,996	10,188	36,477
<b>Brood Year Total</b>				<b>2,413</b>	<b>300,682</b>	<b>23,629,751</b>	<b>24,070</b>	<b>106,814</b>
<i>Brood year Lower 90% Confidence Interval</i>				53	168,638	16,405,229	8,179	52,650
<i>Brood year Upper 90% Confidence Interval</i>				4,772	432,727	30,854,273	39,960	160,979

<sup>1</sup> Peak daily discharge values do not account for diversions at RBDD and only represent peak flows registered at the Bend Bridge Gauging station (<http://cdec2.water.ca.gov/cgi-progs/queryFx?bnd>).

<sup>2</sup> Biweekly totals may be greater than the sum of the daily estimates presented in this table if sampling was not conducted on each day of the biweekly period. A dash (-) denotes those dates. To estimate daily passage for days that were not sampled, we impute missed sample days with the weekly mean value of days sampled within the week.

## Juvenile Winter Chinook Salmon Estimated Passage

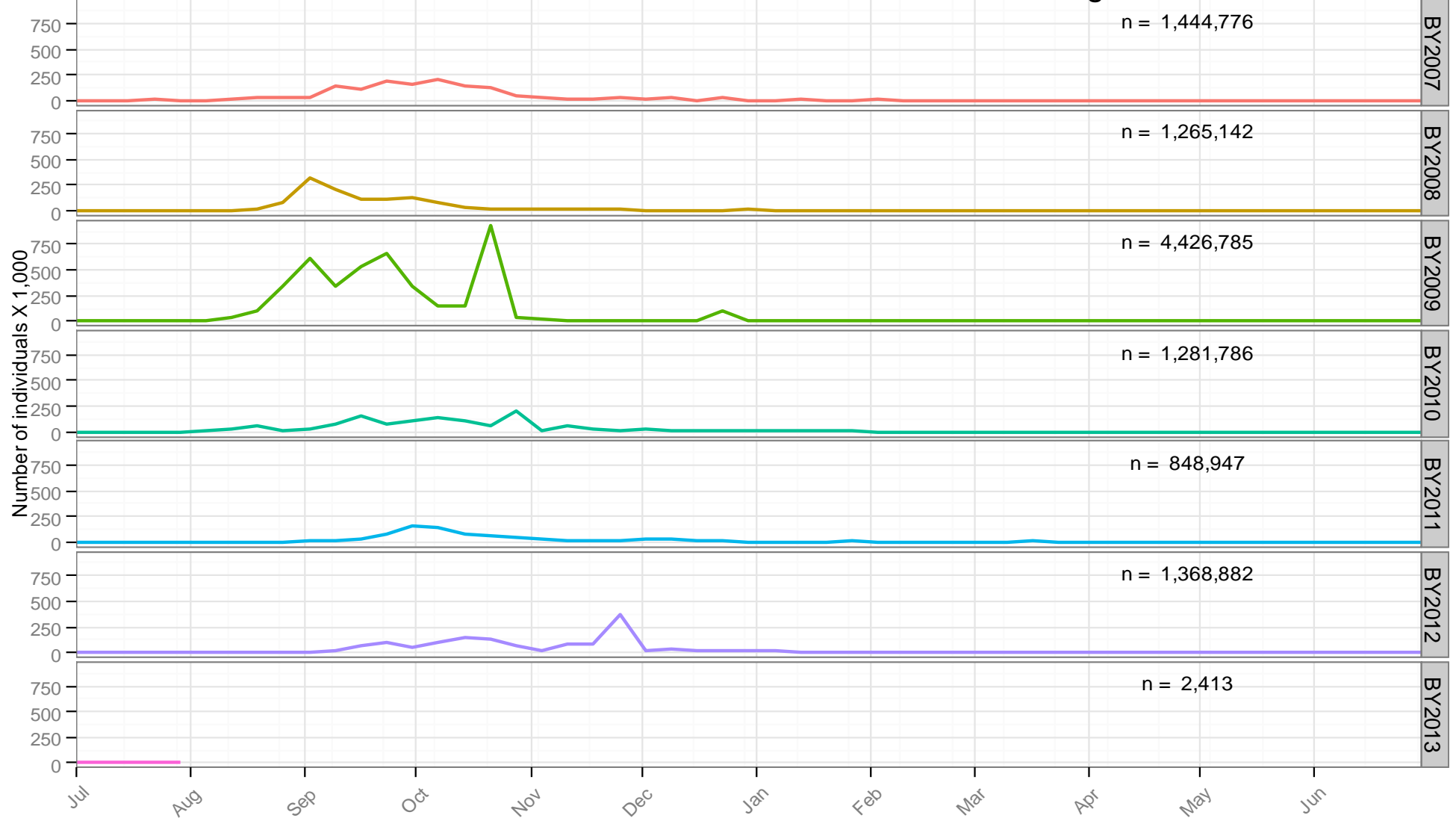


Figure 1. Weekly estimated passage of juvenile winter Chinook Salmon at Red Bluff Diversion Dam (RK391), by brood-year (BY). Fish were sampled using rotary-screw traps for the period July 1 2007 to present .

## Juvenile Spring Chinook Salmon Estimated Passage

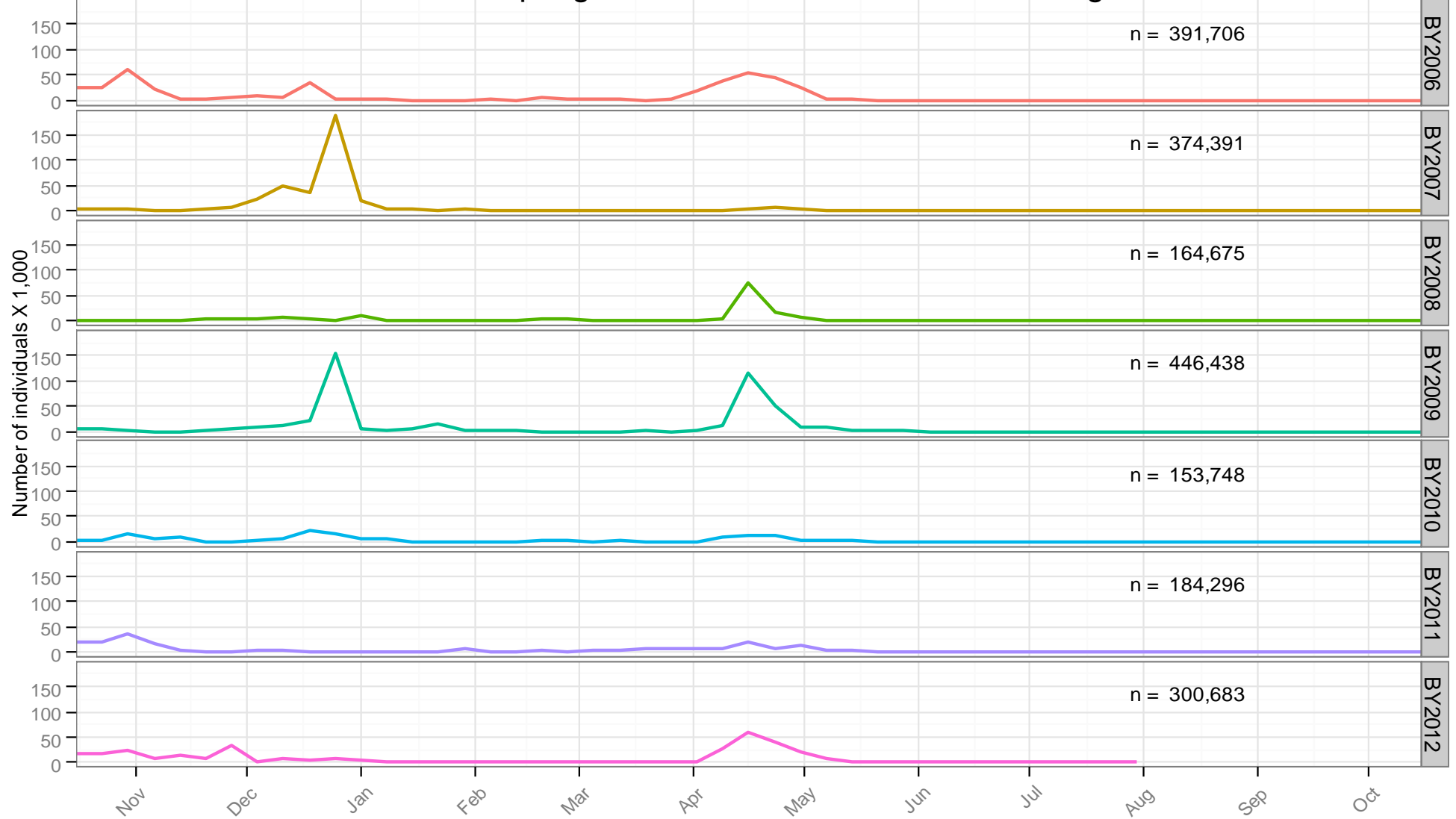


Figure 2. Weekly estimated passage of juvenile Spring Chinook Salmon at Red Bluff Diversion Dam (RK391), by brood-year (BY). Fish were sampled using rotary-screw traps for the period October 16 2006 to present .

## Juvenile *Onchorhynchus mykiss* Estimated Passage

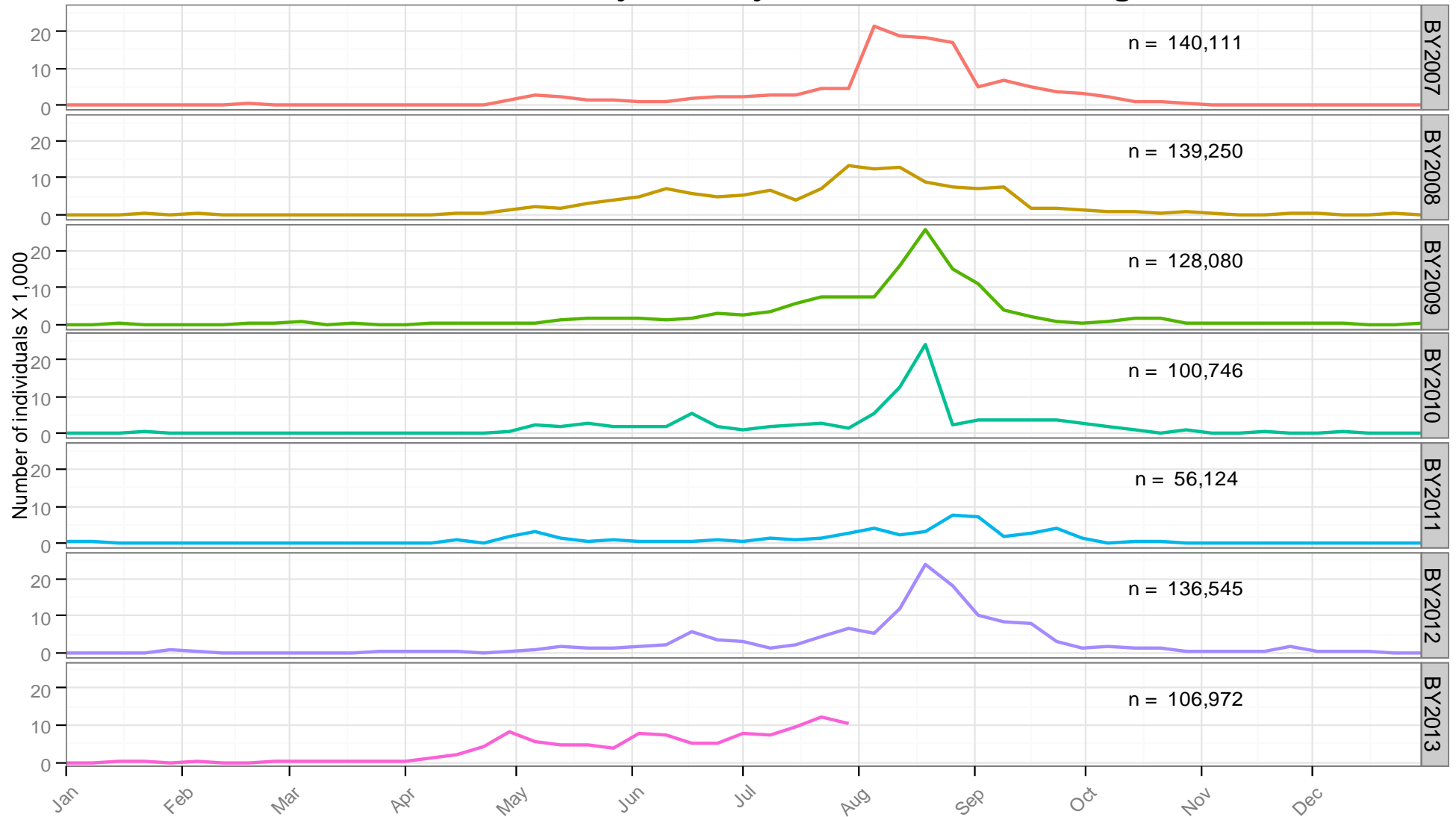


Figure 3. Weekly estimated passage of juvenile Rainbow/Steelhead trout at Red Bluff Diversion Dam (RK391), by brood-year (BY). Fish were sampled using rotary-screw traps for the period January 1 2007 to present .

## Juvenile Fall Chinook Salmon Estimated Passage

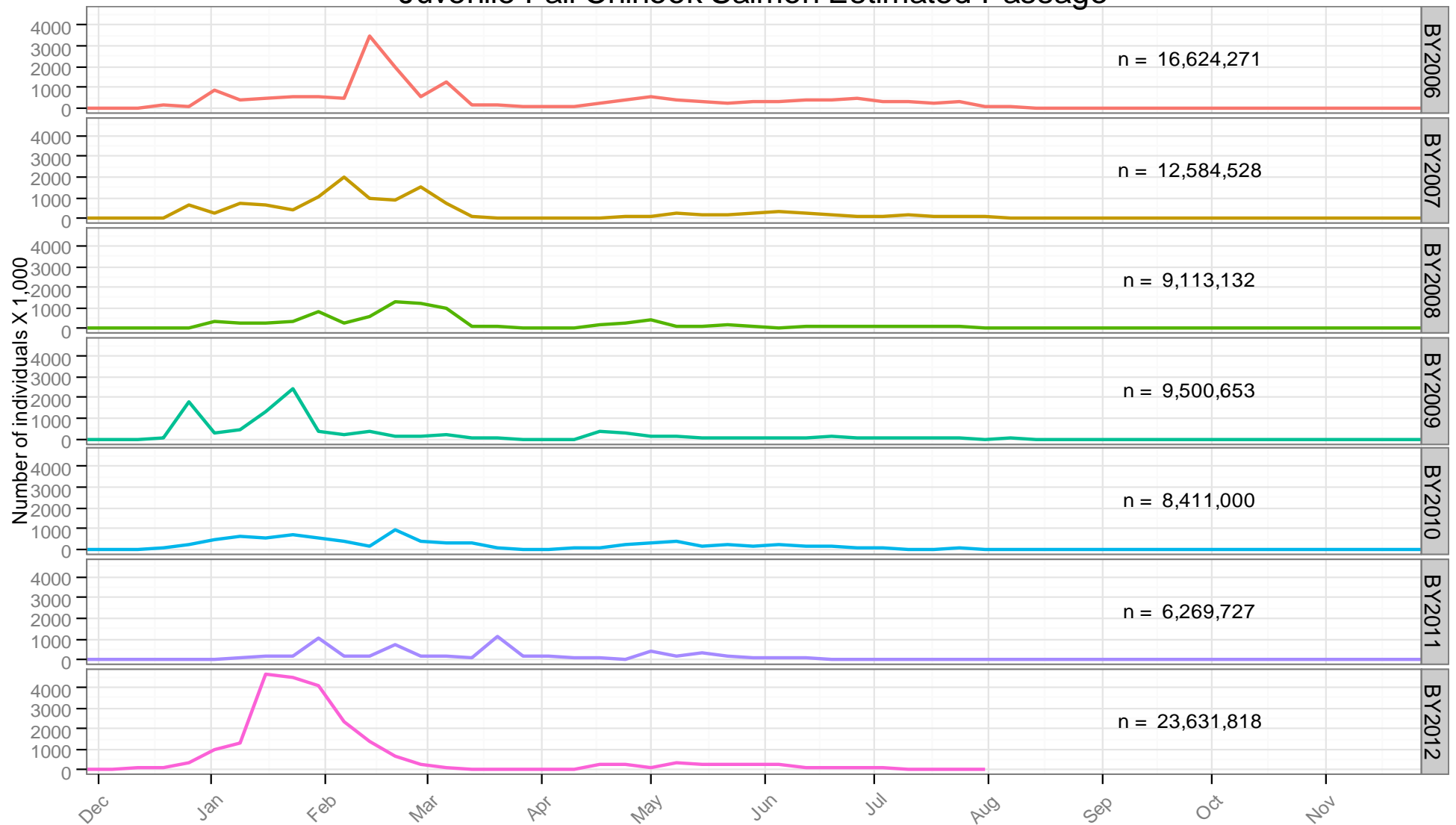


Figure 4. Weekly estimated passage of juvenile Fall Chinook Salmon at Red Bluff Diversion Dam (RK391), by brood-year (BY). Fish were sampled using rotary-screw traps for the period December 1 2006 to present.

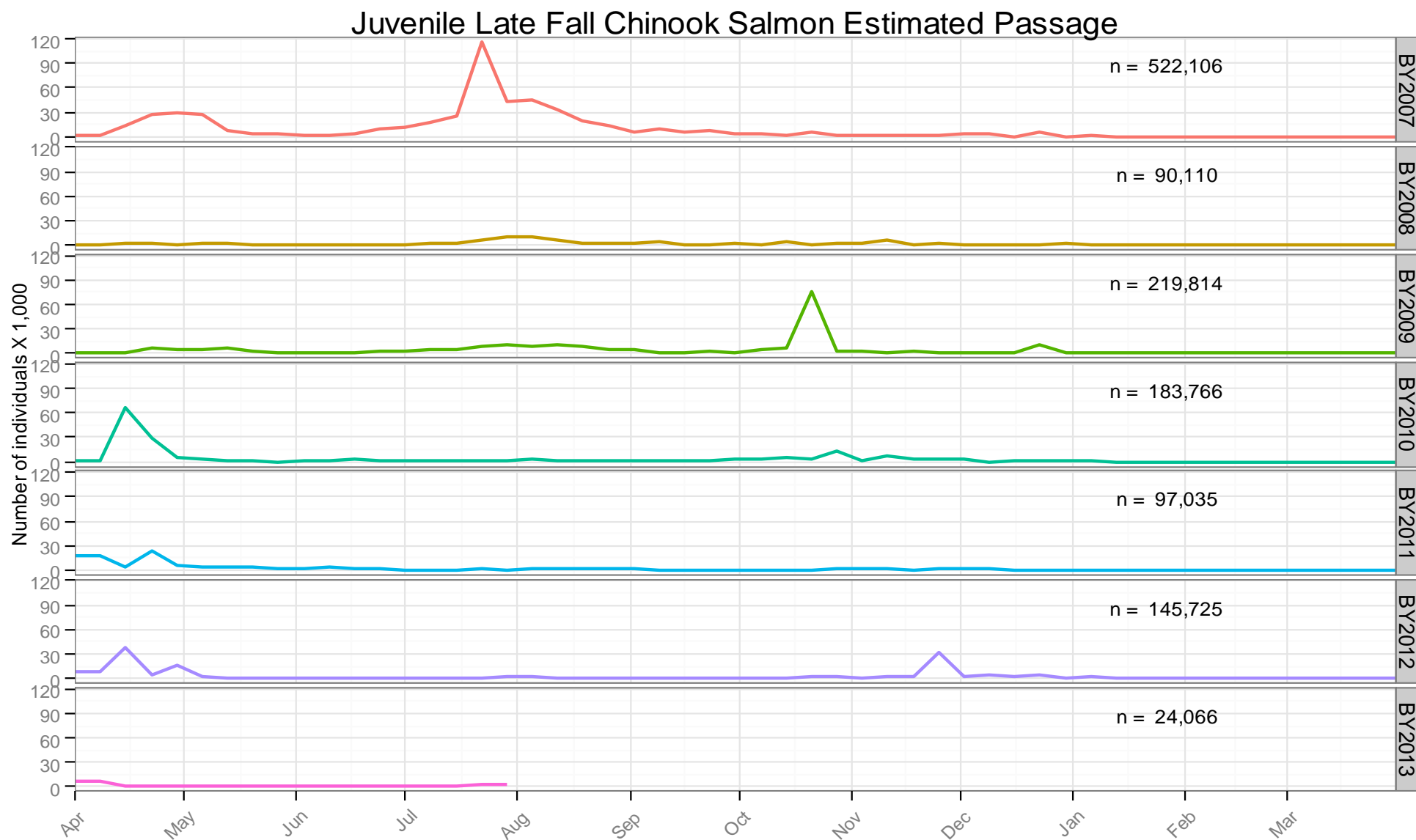


Figure 5. Weekly estimated passage of juvenile Late Fall Chinook Salmon at Red Bluff Diversion Dam (RK391), by brood-year (BY). Fish were sampled using rotary-screw traps for the period April 1 2007 to present .

## Weekly Estimated Chinook Passage at Red Bluff Diversion Dam - All Runs Combined

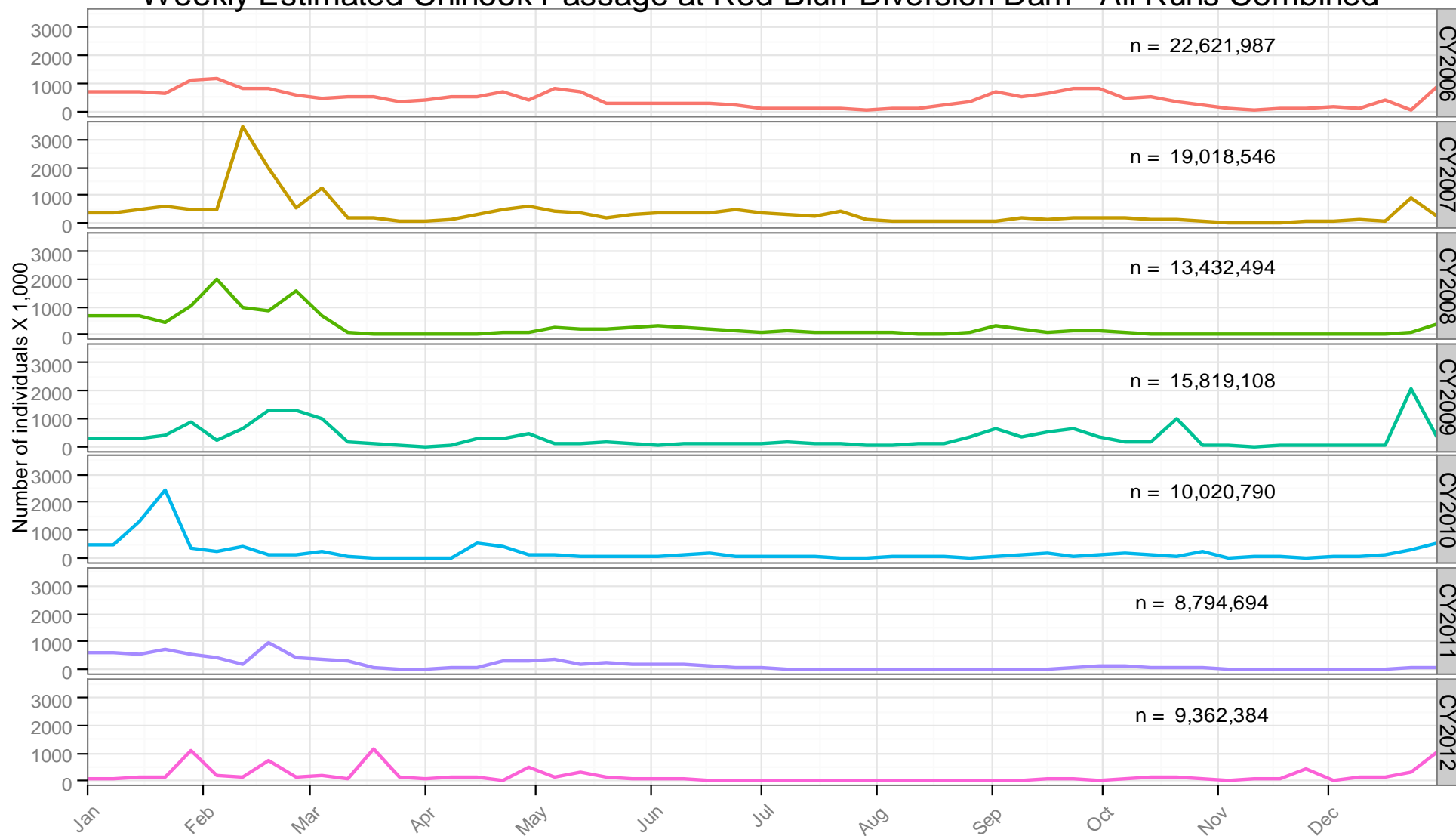


Figure 6. Weekly estimated passage of juvenile Chinook Salmon at Red Bluff Diversion Dam (RK391), by calendar year. Fish were sampled using rotary-screw traps for the period January 1 2006 to December 31 2012